

AMENDMENTS

In the Claims

PENDING CLAIMS AND STATUS THEREOF

1. (currently amended) A method of adjusting time recordation, comprising:

sending a first message to a first processor that maintains a first time;

sending a second message to a second processor that maintains a second time;

recording the first time when the first processor receives the first message, as a first recorded time;

recording the second time when the second processor receives the second message, as a second recorded time;

sending a third message from the first processor to the second processor;

sending a fourth message from the second processor to the first processor including information indicative of the ~~recorded~~ second recorded time; and

setting the first time of the first processor based at least in part on the sum of the ~~recorded~~ second recorded time and a roundtrip time for the third and fourth messages.

2. (original) The method of claim 1 where the first processor and second processor are coupled by an asymmetric communication medium.

3. (original) The method of claim 1 where the first processor and second processor are coupled by an asymmetric digital subscriber line.

4. (original) The method of claim 1 where sending a first message to a first processor that maintains a first time and sending a second message to a second processor that maintains a second time are separated by a predictable amount of time.

5. (original) The method of claim 1 where the third message includes an identification of the first message and further comprising:

upon receipt of the third message, matching the identification of the first message with an identification of the second message.

1 6. (currently amended) The method of claim 1, further comprising:

2 sending a fifth message to the first processor;

3 sending a sixth message to the second processor;

4 recording the first time when the first processor receives the fifth message, as a third recorded
5 time;

6 recording the second time when the second processor receives the sixth message, as a fourth
7 recorded time;

8 sending a seventh message from the first processor to the second processor including
9 information indicative of the third recorded ~~first~~ time; and

10 sending an eighth message from the second processor to the first processor including a
11 correction based at least in part at least in part on the third and fourth recorded ~~first and~~
12 ~~second~~ times.

1 7. (currently amended) The method of claim 1, further comprising:

2 sending a fifth message to the first processor;

3 sending a sixth message to the second processor;

4 recording the first time when the first processor receives the fifth message, as a third recorded
5 time;

6 recording the second time when the second processor receives the sixth message, as a fourth
7 recorded time;

8 sending a seventh message from the first processor to the second processor including
9 information indicative of the third recorded ~~first~~ time;

10 sending an eighth message from the second processor to the first processor including
11 information indicative of the fourth recorded ~~first~~ time; and

12 calculating a correction based at least in part at least in part on the third and fourth recorded
13 ~~first and second~~ times.

1 8. (original) The method of claim 7 further comprising:

2 applying the correction to the first time a plurality of times at a regular interval.

1 9. (original) The method of claim 1 where the first processor is located remotely from the second
2 processor.

1 10. (original) The method of claim 9 where the first processor is located in a wellbore and the second
2 processor is located at the surface.

1 11. (original) The method of claim 10 where the first processor is coupled by a network to a plurality
2 of tools that send time-based measurements to the second processor.

1 12. (original) The method of claim 1 where the roundtrip time for the third and fourth messages is an
2 amount of time from the sending of the third message to the receipt of the fourth message.

1 13. (currently amended) A method of adjusting time recordation, comprising:
2 sending a first message to a first processor that maintains a first time;
3 sending a second message to a second processor that maintains a second time;
4 recording the first time when the first processor receives the first message, as a first recorded
5 time;
6 recording the second time when the second processor receives the second message, as a second
7 recorded time;
8 sending a ~~fourth~~ third message from the second processor to the first processor including data
9 based at least in part on the second recorded ~~second~~ time; and
10 adjusting the first time based on a correction that is based at least in part on the data and the
11 first recorded ~~first~~ time.

1 14. (currently amended) The method of claim 13 where the data is the second recorded ~~second~~ time.

1 15. (original) The method of claim 13 where the data is equal to the correction.

1 16. (original) The method of claim 13 where sending a first message to a first processor that maintains
2 a first time and sending a second message to a second processor that maintains a second time are
3 separated by a predictable amount of time.

1 17. (currently amended) The method of claim 13 where the ~~fourth~~ third message includes an
2 identification of the second message and further comprising:

3 upon receipt of the ~~fourth~~ third message, matching the identification of the second message
4 with an identification of the first message.

1 18. (original) The method of claim 13 where the first processor and second processor are coupled by an
2 asymmetric communication medium.

1 19. (original) The method of claim 13 where the first processor and second processor are coupled by an
2 asymmetric digital subscriber line.

1 20. (original) The method of claim 13 where adjusting the first time occurs at regular intervals.

1 21. (original) The method of claim 13 where the first processor is located remotely from the second
2 processor.

1 22. (original) The method of claim 21 where the first processor is located in a wellbore and the second
2 processor is located at the surface.

1 23. (original) The method of claim 22 where the first processor is coupled by a network to a plurality
2 of tools that send time-based measurements to the second processor.

1 24. (original) The method of claim 13 where adjusting the first time includes moving the first time
2 forward or backward by an amount and, after a predetermined time, moving it forward or backward by
3 the same amount again.

1 25. (currently amended) A computer program, stored on a tangible storage medium, for adjusting time
2 recordation, the program including executable instructions that cause one or more computers to:

3 send a first message to a first processor that maintains a first time;

4 send a second message to a second processor that maintains a second time;

5 record the first time when the first processor receives the first message, as a first recorded time;

6 record the second time when the second processor receives the second message, as a second
7 recorded time;
8 send a third message from the first processor to the second processor;
9 send a fourth message from the second processor to the first processor including information
10 indicative of the second recorded ~~second~~ time; and
11 set the first time of the first processor based at least in part on the sum of the second recorded
12 ~~second~~ time and the roundtrip time for the third and fourth messages.

1 26. (original) The computer program of claim 25 where the first processor and second processor are
2 coupled by an asymmetric communication medium.

1 27. (original) The computer program of claim 25 where the first processor and second processor are
2 coupled by an asymmetric digital subscriber line.

1 28. (original) The computer program of claim 25 where the one or more computers are caused to send
2 a first message to a first processor that maintains a first time and send a second message to a second
3 processor that maintains a second time within a predictable amount of time.

1 29. (original) The computer program of claim 25 where the third message includes an identification of
2 the first message and further including executable instructions that cause one or more computers to:
3 upon receipt of the third message, match the identification of the first message with an
4 identification of the second message.

1 30. (currently amended) The computer program of claim 25 further including executable instructions
2 that cause one or more computers to:

3 send a fifth message to the first processor;
4 send a sixth message to the second processor;
5 record the first time when the first processor receives the fifth message, as a third recorded
6 time;
7 record the second time when the second processor receives the sixth message, as a fourth
8 recorded time;
9 send a seventh message from the first processor to the second processor including information
10 indicative of the third recorded ~~first~~ time; and

11 send an eighth message from the second processor to the first processor including a correction
12 based at least in part on the third and fourth recorded ~~first and second~~ times.

1 31. (currently amended) The computer program of claim 25 further including executable instructions
2 that cause one or more computers to:

3 send a fifth message to the first processor;

4 send a sixth message to the second processor;

5 record the first time when the first processor receives the fifth message, as a third recorded
6 time;

7 record the second time when the second processor receives the sixth message, as a fourth
8 recorded time;

9 send a seventh message from the first processor to the second processor including information
10 indicative of the third recorded ~~first~~ time;

11 send an eighth message from the second processor to the first processor including information
12 indicative of the fourth recorded ~~second~~ time; and

13 calculate a correction based at least in part on the third and fourth recorded ~~first and second~~
14 times.

1 32. (original) The computer program of claim 31 further including executable instructions that cause
2 one or more computers to:

3 apply the correction to the first time a plurality of times at a regular interval.

1 33. (original) The computer program of claim 25 where the first processor is located remotely from the
2 second processor.

1 34. (original) The computer program of claim 33 where the first processor is located in a wellbore and
2 the second processor is located at the surface.

1 35. (original) The computer program of claim 34 where the first processor is coupled by a network to a
2 plurality of tools that send time-based measurements to the second processor.

1 36. (currently amended) A computer program, stored on a tangible storage medium, for adjusting time

2 recordation, the program including executable instructions that cause one or more computers to:
3 send a first message to a first processor that maintains a first time;
4 send a second message to a second processor that maintains a second time;
5 record the first time when the first processor receives the first message, as a first recorded time;
6 record the second time when the second processor receives the second message, as a second
7 recorded time;
8 send a third ~~fourth~~ message from the second processor to the first processor including data
9 based at least in part on the second recorded ~~second~~ time; and
10 adjust the first time based on a correction that is based at least in part on the data and the first
11 recorded ~~first~~ time.

1 37. (currently amended) The computer program of claim 36 where the data is the second recorded
2 ~~second~~ time.

1 38. (original) The computer program of claim 36 where the data is equal to the correction.

1 39. (original) The computer program of claim 36 where the one or more computers are caused to send
2 a first message to a first processor that maintains a first time and send a second message to a second
3 processor that maintains a second time within a predictable amount of time.

1 40. (currently amended) The computer program of claim 36 where the third ~~fourth~~ message includes an
2 identification of the second message and further including executable instructions that cause one or
3 more computers to:
4 upon receipt of the third ~~fourth~~ message, match an identification of the first message with the
5 identification of the second message.

1 41. (original) The computer program of claim 36 where the first processor and second processor are
2 coupled by an asymmetric communication medium.

1 42. (original) The computer program of claim 36 where the first processor and second processor are
2 coupled by an asymmetric digital subscriber line.

1 43. (original) The computer program of claim 36 where adjusting the first time occurs at regular
2 intervals.

1 44. (original) The computer program of claim 36 where the first processor is located remotely from the
2 second processor.

1 45. (original) The computer program of claim 44 where the first processor is located in a wellbore and
2 the second processor is located at the surface.

1 46. (original) The computer program of claim 45 where the first processor is coupled by a network to a
2 plurality of tools that send time-based measurements to the second processor.

1 47. (currently amended) A system, comprising:

2 a first processor that maintains a first time;

3 a communication medium coupled to the first processor; and

4 a second processor that maintains a second time coupled to the communications medium;

5 where

6 the first processor is adapted to receive a first message;

7 the second processor is adapted to receive a second message;

8 the first time is recorded when the first processor receives the first message, as a first recorded
9 time;

10 the second time is recorded when the second processor receives the second message, as a
11 second recorded time;

12 the first processor is adapted to send a third message to the second processor;

13 the second processor is adapted to send a fourth message to the first processor including
14 information indicative of the second recorded ~~second~~ time; and

15 the first time is set based at least in part on the sum of the second recorded ~~second~~ time and the
16 roundtrip time for the third and fourth messages.

1 48. (original) The system of claim 47 where the communication medium is asymmetric.

1 49. (original) The system of claim 47 where the communication medium is an asymmetric digital
2 subscriber line.

1 50. (original) The system of claim 47 where the first and second messages are received a predictable
2 amount of time apart.

1 51. (original) The system of claim 47 where the third message includes an identification of the first
2 message and the second processor is adapted to, upon receipt of the third message, match the
3 identification of the first message with an identification of the second message.

1 52. (currently amended) The system of claim 47 where:

2 the first processor is adapted to receive a fifth message;

3 the second processor is adapted to receive a sixth message;

4 the first time is recorded when the first processor receives the fifth message, as a third recorded
5 time;

6 the second time is recorded when the second processor receives the sixth message, as a fourth
7 recorded time;

8 the first processor is adapted to send a seventh message to the second processor including
9 information indicative of the third recorded first time; and

10 the second processor is adapted to send an eighth message to the first processor including a
11 correction based at least in part on the third and fourth recorded ~~first and second~~ times.

1 53. (currently amended) The system of claim 47 where:

2 the first processor is adapted to receive a fifth message;

3 the second processor is adapted to receive a sixth message;

4 the first time is recorded when the first processor receives the fifth message, as a third recorded
5 time;

6 the second time is recorded when the second processor receives the sixth message, as a fourth
7 recorded time;

8 the first processor is adapted to send a seventh message to the second processor including
9 information indicative of the third recorded first time;

10 the second processor is adapted to send an eighth message to the first processor including
11 information indicative of the fourth recorded ~~second~~ time; and
12 the first processor is adapted to calculate a correction based at least in part on the third and
13 fourth recorded ~~first and second~~ times.

1 54. (original) The system of claim 53 where:

2 the first processor applies the correction to the first time a plurality of times at a regular
3 interval.

1 55. (original) The system of claim 47 where the first processor is located remotely from the second
2 processor.

1 56. (original) The system of claim 55 where the first processor is located in a wellbore and the second
2 processor is located at the surface.

1 57. (original) The system of claim 56 where the first processor is coupled by a network to a plurality of
2 tools that send time-based measurements to the second processor.

1 58. (currently amended) A system, comprising:

2 a first processor that maintains a first time;

3 a communication medium coupled to the first processor; and

4 a second processor that maintains a second time coupled to the communications medium;

5 where

6 the first processor is adapted to receive a first message;

7 the second processor is adapted to receive a second message;

8 the first time is recorded when the first processor receives the first message, as a first recorded
9 time;

10 the second time is recorded when the second processor receives the second message, as a
11 second recorded time;

12 the second processor is adapted to send a fourth message to the first processor including data
13 based at least in part on the second recorded ~~second~~ time; and

14 the first time is adjusted based on a correction that is based at least in part on the data and the
15 first recorded ~~first~~ time.

1 59. (currently amended) The computer system of claim 58 where the data is the second recorded
2 ~~second~~ time.

1 60. (original) The computer system of claim 58 where the data is equal to the correction.

1 61. (original) The computer system of claim 58 where the first and second messages are received a
2 predictable amount of time apart.

1 62. (original) The computer system of claim 58 where the fourth message includes an identification of
2 the second message and the second processor is adapted to, upon receipt of the fourth message, match
3 an identification of the first message with the identification of the second message.

1 63. (original) The computer system of claim 58 where the communication medium is asymmetric.

1 64. (original) The computer system of claim 58 where the communication medium is an asymmetric
2 digital subscriber line.

1 65. (original) The computer system of claim 58 where adjusting the first time occurs at regular
2 intervals.

1 66. (original) The computer system of claim 58 where the first processor is located remotely from the
2 second processor.

1 67. (original) The computer system of claim 66 where the first processor is located in a wellbore and
2 the second processor is located at the surface.

1 68. (original) The computer system of claim 67 where the first processor is coupled by a network to a
2 plurality of tools that send time-based measurements to the second processor.